

REMARKS

Claims 1-37, of which claims 1-2, 10-11, and 32 are amended, are pending and under active consideration in this application. These claims have been amended to further stress the novel and inventive features of the present application over the prior art. In particular, the amended claims now recite that a simultaneous access to transmitted or communicated information is provided to the dentist and the dental restoration laboratory. The changes to the claims are supported by both the original claims (e.g., claim 18) and the specification. As no new matter has been introduced, Applicants respectfully request that the amendments be entered at this time to reduce the issues for appeal by placing the entire application in condition for allowance.

Claims 1-9 and 11-17 are rejected under 35 U.S.C. § 102(b) as being anticipated by Graham *et al.* (U.S. Patent No. 5,177,694) for the reasons set forth on pages 2-3 of the Office Action. Applicants respectfully traverse.

Some of the important differences between the present claims and Graham can be found in the kind of information communicated and the manner of communication in each system. As noted in the amendments submitted in response to the previous Office Action of September 12, 2003, Graham relates to one-way or unilateral communication where the information (photographs of teeth) is transmitted through the use of an intermediary medium in the form of a diskette. Thus, the diskette must be physically transferred between the dentist and the analysis laboratory for information to be exchanged in Graham, and the dentist and the laboratory would not have access to the same information at the same time. Because only one party can have access to the information stored in the diskette at any one time, simultaneous communication is not possible in Graham, and the stored information is transmitted unilaterally, only through the transfer of the diskette. While the diskette is retained by the laboratory, the dentist cannot make any changes to the stored information and therefore cannot provide an input specific to the photographs stored in the diskette.

By contrast, the present invention eliminates the need for physically transferring the medium containing the dental information, and allows simultaneous access to the information by all parties involved in the dental restorative process (*see* [0029]; [0038]-[0040]). The present network allows information to be accessed, modified, and shared in real time by both the dentist and the dental restoration laboratory, and eliminates any inconveniences and inefficiencies associated with having to physically exchange the diskette. A benefit resulting from the present network's dispensing with an intermediary medium is that direct and instant

communication, if desired, is allowed (*see* [0058]). Where the dentist chooses to communicate immediately with the laboratory the electronic image of a patient's teeth, along with any other information, he may easily do so without encountering administrative inconveniences necessitated by transferring a diskette.

Furthermore, the present network provides for interactive data entry and analysis, in addition to the real-time data communication between relevant parties. Whereas Graham allows only a unilateral data input (such as storing a tooth image on a diskette), the present network guides the user through a step-by-step procedure and asks relevant questions in order to determine the most appropriate restorative path ([0032]-[0033]). By leading the dentist and the dental restoration laboratory through a step-by-step procedure and presenting them with pertinent issues and alternatives, the present network greatly enhances the efficiency and effectiveness of a restoration treatment. For example, the database of the present network may contain information about different dental procedures or answers to commonly asked questions, and may even be connected to external information sources that provide input from product manufacturers or market researchers ([0155]). Such involvement of external sources and forums providing information from researchers, dental suppliers, or other dentists and technicians cannot be incorporated in the Graham invention, and offers a unique benefit during the tooth restoration process by facilitating a multi-dimensional information exchange.

Another significant benefit of the present interactive network is that it enables the preparation and communication of a preliminary treatment plan to the dental restoration laboratory upon initial patient examination by the dentist ([0027]). Because the present invention allows transmission of digitalized image as well as text information, the users can communicate in real time a preliminary treatment plan, which can be designed with the interactive guide of the database. In this respect, Applicants respectfully disagree with the Examiner's statement that "the dentist inherently designs a 'preliminary treatment plan for addressing the dental need of the patient' [according to Graham], by deciding on the tooth to be restored and the type of restoration needed" (pp 2-3, Office Action).

First, Applicants would like to point out that "treatment planning" is a term of art. "Treatment planning consists of formulating a logical sequence of treatment in steps designed to restore the patient's dentition to good health, with optimal function and appearance," and should be presented "in written form and discussed in detail with the patient" (Contemporary Fixed Prosthodontics, 2 Ed., p 46). Treatment planning encompasses more than one method of treatment and includes other factors presented in that patient at that time (*see* American Dental Association's Code of Dental Terminology, 4th Edition ("CDT-4 Manual")).

Accordingly, it should be distinguished from "evaluation," the determination of any changes or needs of the patient, and "diagnosis," the classification of the problem identified during evaluation (see CDT-4 Manual). The definitions for these terms of art help understand why forming a preliminary treatment plan is not inherent in the prior art.

Graham is directed to transmitting a photographic image of a patient's tooth to the analysis laboratory, which performs the initial analysis and generates a porcelain coded map, from which the dentist produces a dental cap or a prosthetic tooth (col. 5, lines 1-58). While it is possible that the dentist may form a preliminary opinion as to which treatment to pursue, such opinion is more accurately characterized as "evaluation" or "diagnosis," and constructing and communicating a preliminary treatment plan is not inherent in Graham, especially given that Graham teaches information analysis to be performed by the laboratory. In fact, Graham seeks to minimize the tooth color mismatching by computerizing the matching process, with little subjective or human input (col. 1, lines 54-56; col. 2, lines 3-16; col. 1, lines 16-18 ("At present the [tooth color matching] method is subjective and the results very much dependent on the skills of the person doing the colour matching"), lines 26-28 ("the dentist and the technician are most likely to have different colour perceptions . . ."). Therefore, designing a preliminary treatment plan in the Graham method, far from being inherent, would be remote and separate from the transmission of the tooth image, in contrast to being integral as in the present invention. Whereas the present interactive database actively invites construction of a preliminary treatment plan by the dentist and the present network allows easy and instant communication of the preliminary plan, the dentist's role in Graham is necessarily and purposely more passive during the initial stage of the process.

Furthermore, in the interest of expediting the prosecution of this application, claims 1-2 and 11 have been amended to recite that the dentist and the dental restoration laboratory simultaneously have access to the electronic image and/or the preliminary treatment plan that have been transmitted. Accordingly, Applicants respectfully request that the § 102(b) rejection be withdrawn.

Claims 1-37 are rejected under 35 U.S.C. § 102(e) as being anticipated by Morris *et al.* (U.S. Patent No. 6,190,170) for the reasons stated on page 3 of the Office Action. Like Graham, however, Morris fails to disclose an interactive system that enables real-time communication.

As explained in the amendment submitted on November 25, 2003, Morris teaches automated tooth shade analysis and matching by capturing an image of a patient's teeth, which is sent to a laboratory for analysis. The laboratory then manufactures a prosthetic

tooth, sends the image of the prosthetic tooth to the dentist, and, upon the dentist's confirmation, sends the manufactured tooth to the dentist (*see* Fig. 2A). As is apparent from its disclosures, Morris provides neither interactive nor real-time communication. Information flows in only one direction in Morris, and its system provides no mechanism for the dentist and the laboratory to enter the information into the database interactively, to simultaneously access the stored information, or to exchange feedbacks in real time.

In addition, designing a preliminary treatment plan is not inherent in the Morris system. Given the definition of the "treatment planning" in the art, it is easy to understand that the dentist, in acquiring and sending a patient's photographic images, would at most perform "evaluation" or "diagnosis," and is unlikely to consider modalities that comprehensively address the problem raised during the evaluation and diagnosis. That Morris, like Graham, seeks to reduce the inaccuracies inherent in the dentist's "eyeballing" the color match (col. 1, line 63 to col. 2, line 17) further evidences the fact that the Morris system is designed to discourage the dentist from forming a treatment plan before consulting the laboratory.

Moreover, claim 1-2, 10-11, and 32 have been amended to emphasize the novel and inventive features of the present application over the prior art. Accordingly, Applicants respectfully request that the § 102(e) rejection be withdrawn.

Claims 10 and 18-37 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Graham *et al.* As the preceding explanation shows, however, the present invention differs from Graham in such significant aspects that merely changing the manner of sending the image from courier on a diskette to direct computer link or e-mail would not render the present network obvious to a skilled artisan. Because Graham makes no disclosure of interactive information entry or simultaneous communication in real time, a person skilled in the art would not reasonably expect to reach the present invention merely by altering the means of image delivery from diskette to computer link or e-mail for faster delivery. Therefore, Applicants respectfully submit that the § 103 rejection over Graham is inappropriate and should be withdrawn.

Finally, it should also be noted that both Graham and Morris are directed to improved matching of tooth shades. Hence, the present application, addressing all aspects of dental restoration and prosthesis (*see, e.g.*, [0144]-[0147]) is not anticipated or rendered obvious by the prior art references directed solely to tooth coloring and lacking critical elements disclosed in the present application.

In view of the preceding explanation, the entire application is now in condition for allowance, early notice of which would be appreciated. Should the Examiner not agree, a personal or telephonic interview is respectfully requested to discuss any remaining issues and expedite the eventual allowance of the application. Please call the undersigned to arrange for this interview.

Respectfully submitted,

Date

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